USSN 10/042,237
Art Unit 2644

NE

Amendments to Claims

Please amend the claims as follows:

1(currently amended). A method of detecting double-talk and path changes in an echo cancellation system including a Least Mean Squares adaptive filter for generating an echo cancellation signal, comprising:

generating a cross correlation matrix

$$\mathbf{R} = E[\mathbf{X}\,\mathbf{X}^T]$$

where E is the statistical expectation operator and

$$\mathbf{X} = \begin{bmatrix} X_0 \\ X_1 \end{bmatrix}$$ where

X_0 is an echo path signal and X_1 is an estimated echo signal generated by said adaptive filter; and

performing a matrix operation on said matrix R to generate a characteristic value determinative of the correlation between said signals X_0 and X_1; and

~~correlation-based matrix of signals in said echo cancellation system; and~~

~~analyzing said correlation-based matrix to~~ ~~identify~~detecting the presence of double-talk and path changes occurring in said system from said characteristic value.

2 (cancelled). ~~A method as claimed in claim 1, wherein said correlation-based matrix is generated using zero lag auto and cross correlations of said signals.~~

3(currently amended). A method as claimed in claim ~~2~~1, wherein said characteristic value is the determinant ~~a determinant~~ of said matrix ~~is used to detect said double-talk and path changes~~.

4. A method as claimed in claim 3, wherein said double-talk and path changes are inferred when ~~the value of~~ said determinant passes predetermined threshold values.

5(currently amended). A method as claimed in claim ~~2~~1, wherein said characteristic value comprises eigendecompositions of said matrix ~~are used to detect said double-talk and path changes~~.

6(currently amended). A method as claimed in claim ~~2~~1, wherein said characteristic value comprises single valued decompositions of said matrix ~~are used to detect said double-talk and path changes~~.

NE.

7(currently amended). A method as claimed in claim 2, wherein said characteristic value comprises condition numbers of said matrix ~~are used to detect said double talk and path changes~~.

8(cancelled).

9(cancelled).

10(currently amended). A method as claimed in claim 91, wherein said ~~LMS~~ Least Mean Square filter implements a normalized-LMS algorithm.

11(currently amended). A method as claimed in claim 1, wherein the elements of said ~~correlation based~~ matrix are generated in the time domain.

12(original). A method as claimed in claim 1, wherein the elements of said correlation-based matrix are generated in the frequency domain.

13(cancelled).

14(cancelled).

15(cancelled).

16(cancelled).

17(cancelled).

18 cancelled).

19 cancelled).

20 cancelled).

21 cancelled).

22 cancelled).